

CLAIMS

1. A method of generating an adaptive software interface for at least two networked entities, the method comprising:

5 generating structured meta-data providing at least one semantic information element describing a characteristic of each said entity;

collating the semantic information elements of each said entity where possible with corresponding semantic information elements of said at least one other entity; and

10 analysing said collated semantic information elements to establish the extent to which the interface capabilities of said at least two networked entities are compatible and generating in accordance with said established compatibility the adaptive software interface for the two entities.

15 2. A method as claimed in claim 1, wherein the step of collating occurs dynamically during a preliminary exchange between the two entities prior to an interface being established between the two entities.

3. A method as claimed in claim 1, wherein said structured meta-data
20 includes associated meta-data for at least one said semantic information element.

4. A method as claimed in claim 1, wherein the semantic information
25 element describing the characteristics of said adaptive interface is provided in said meta-data in a form independent of the version of software used to generate said metadata.

5. A method as claimed in claim 1, wherein said semantic information
30 element is generated by a compiler receiving input data from an interface description and a code template.

6. A method as claimed in claim 1, wherein said interface description includes a model of the data to be communicated across the interface and a code template.

7. A method as claimed in claim 1, wherein said semantic information element provided by said meta-data has a form which can be mapped to an appropriate transport layer and exchanged between said networked entities prior to a higher level interface being established between said networked entities.

8. A method of determining at least one behavioural characteristic of a first entity in a relationship with at least one other entity comprising the steps of:

generating meta-data providing a structure containing at least one semantic information element describing a characteristic of the first entity;

generating meta-data providing a structure containing at least one semantic information element describing a characteristic of the at least one other entity;

collating the semantic information elements of the first entity with the semantic information elements of the at least one other entity;

analysing each pair of collated semantic information elements to determine at least one behavioural characteristic of the first entity in the relationship.

9. A method as claimed in claim 8, wherein the meta-data structure is provided in a form suitable for indicating at least one semantic element taken from the group including: a description, a range, a default value.

10. A method as claimed in claim 8, wherein in the step of generating meta-data for the first entity, the at least one characteristic is a characteristic of an interface of the entity, and wherein in the step of generating meta-data

for the at least one other entity, the at least one characteristic is a characteristic of an interface of the at least one other entity.

11. A method of structuring a meta-data description of data belonging to an
5 entity, the method comprising the step of
generating at least one meta-data structure; and
providing said structure with a range of at least one semantic
information element describing a characteristic of the entity;
associating a description with each said semantic information element;
10 and
associating a default value for said range.

12. A method as claimed in claim 11, wherein in said step of providing said
structure with a range, the at least one semantic information element
15 describing a characteristic of the entity is taken from the group including:
an enumeration convention; a text description; modifiability; a semantic
change; an impact condition; a measurement unit; a presentation condition; an
alias; a response time; a pre-operation condition; and a post-operation
condition.

13. A method as claimed in claim 11, wherein the meta-data structure is
generated in and provided in a form suitable for another entity adapted to
receive said meta-data structure to determine a varying ability of the entity to
support an interface according to said range of semantic information
25 element(s).

14. A method as claimed in claim 11, wherein the semantic information
provides a sufficiently detailed description to indicate at least one common
and/or distinguishing interface description language feature which is
30 generated by an interpretable compiler.

15. A data probing method enabling a first entity to receive structured meta-data, the meta-data comprising a discernable description of at least one characteristic of a second entity, the method comprising the steps of:

transmitting a request for said meta-data from the first entity to the
5 second entity, the request indicating that at least one semantic element providing a discernable description of said at least one characteristic is to be provided;

analysing said request to determine the structure of the meta-data requested;

10 generating discernable meta-data structured in accordance with said analysis which contains at least one semantic information element providing a discernable description of at least one characteristic of data associated with the second entity; and

returning said requested structured meta-data to said first entity.

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16. A method as claimed in claim 15, wherein at least one characteristic of the second entity is a characteristic of an interface capability of the second entity, and the at least one characteristic of the first entity is a characteristic of an interface capability of the first entity.

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17. A data structure in an application which provides meta-data in a form suitable for use in a data probing method enabling a first entity to receive structured meta-data, the meta-data comprising a discernable description of at least one characteristic of a second entity, the method comprising the steps
25 of:

transmitting a request for said meta-data from the first entity to the second entity, the request indicating that at least one semantic element providing a discernable description of said at least one characteristic is to be provided;

30 analysing said request to determine the structure of the meta-data requested;

generating discernable meta-data structured in accordance with said analysis which contains at least one semantic information element providing a discernable description of at least one characteristic of data associated with the second entity; and

5 returning said requested structured meta-data to said first entity.

18. A method of establishing a compatible interface between an initiator and a responder in the case where an interface of the initiator has at least one differing characteristic from an interface of the responder comprising the steps
10 of

 generating at least one meta-data structure providing at least one semantic information element for each entity, wherein each said semantic information element describes a characteristic of an interface capability of one of said entities;

15 collating said meta-data structures such that each semantic information element corresponding to the initiator's interface capability is collated with a corresponding semantic information element corresponding the responder's interface capability;

 analysing the collated semantic information elements to determine the
20 extent to which the initiator and the responder can generate a compatible interface;

 establishing in accordance with said analysis an interface between said initiator and said responder.

25 19. A network management system adapted to perform the steps in a method of generating an adaptive software interface for at least two entities, the method comprising:

 generating structured meta-data providing at least one semantic information element describing a characteristic of each said entity;

30 collating the semantic information elements of each said entity with those stored semantic information elements of said at least one other entity; and

analysing said collated semantic information elements to establish the extent to which the interface capabilities of said at least two networked entities are compatible and generating in accordance with said established compatibility the adaptive software interface for the two entities.

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20. A program for a computer in a machine readable format arranged to perform steps in a method of generating an adaptive software interface for at least two networked entities, the method comprising:

generating structured meta-data providing at least one semantic
10 information element describing a characteristic of each said entity;

collating the semantic information elements of each said entity with those semantic information elements of said at least one other entity; and

analysing said collated semantic information elements to establish the extent to which the interface capabilities of said at least two networked entities
15 are compatible and generating in accordance with said established compatibility the adaptive software interface for the two entities.

21. A signal comprising a program for a computer arranged to perform steps in a method of generating an adaptive software interface for at least two
20 networked entities, the method comprising:

generating structured meta-data providing at least one semantic information element describing a characteristic of each said entity;

collating the semantic information elements of each said entity with those semantic information elements of said at least one other entity; and

25 analysing said collated semantic information elements to establish the extent to which the interface capabilities of said at least two networked entities are compatible and generating in accordance with said established compatibility the adaptive software interface for the two entities.

30 22. A network including a computer system adapted to perform steps in a method of generating an adaptive software interface for at least two networked entities, the method comprising:

generating structured meta-data providing at least one semantic information element describing a characteristic of each said entity;

collating the semantic information elements of each said entity with those semantic information elements of said at least one other entity; and

5 analysing said collated semantic information elements to establish the extent to which the interface capabilities of said at least two networked entities are compatible and generating in accordance with said established compatibility the adaptive software interface for the two entities.

10 23. A software application capable of providing a semantic description of another application performing a computational process in a network, the semantic description having a predetermined structure which is invariant regarding the version of compiler used to generate said semantic description from said software application and said other application, said semantic
15 description providing discernable features of at least one characteristic of said other application.

24. A software application as claimed in claim 23, wherein said network is taken from the group comprising:
20 a communications network, a data network, a computer network.

25. A software application as claimed in claim 23, wherein said at least one characteristic relates to a characteristic of an ability of said other application to interface with at least one other application performing a computational
25 process over said network.

26. An adaptive software interface for at least two networked entities generated by;
 generating structured meta-data providing at least one semantic
30 information element describing a characteristic of each said entity;

collating the semantic information elements of each said entity where possible with corresponding semantic information elements of said at least one other entity; and

5 analysing said collated semantic information elements to establish the extent to which the interface capabilities of said at least two networked entities are compatible and generating in accordance with said established compatibility the adaptive software interface for the two entities.

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